



US006371968B1

(12) **United States Patent**
Kogasaka et al.

(10) Patent No.: **US 6,371,968 B1**
 (45) Date of Patent: **Apr. 16, 2002**

(54) **CAVITY RETAINING TOOL FOR BONE SURGERY, A CAVITY RETAINING TOOL FOR GENERAL SURGERY, AN ENDOSCOPIC SURGERY SYSTEM INVOLVING THE USE OF A CAVITY RETAINING TOOL, AND A PROCEDURE FOR SURGERY**

(75) Inventors: **Takahiro Kogasaka; Akihisa Ogawa; Akio Nakada**, all of Hachioji; **Shulchi Kimura**, Hino; **Norio Kobayashi**, Kokubunji; **Makoto Kuramochi**, Tokyo, all of (JP)

(73) Assignee: **Olympus Optical Co., Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **08/855,702**

(22) Filed: **May 8, 1997**

(30) **Foreign Application Priority Data**

May 9, 1996	(JP)	8-114940
Aug. 2, 1996	(JP)	8-204495
Nov. 15, 1996	(JP)	8-304323
Dec. 17, 1996	(JP)	8-336810
Apr. 11, 1997	(JP)	9-092649
May 1, 1997	(JP)	9-113978

(51) Int. Cl.⁷ **A61B 17/00**

(52) U.S. Cl. **606/190; 606/86; 604/264; 600/201; 600/206**

(58) Field of Search **606/99, 86, 104, 606/108, 190, 191, 193, 198; 604/104, 164.01, 164.08, 164.1, 171, 264; 600/114, 206, 207, 208**

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,866,601 A * 2/1975 Russell

3,935,863 A	2/1976	Kliger	
4,545,374 A	10/1985	Jacobson	
4,984,564 A	1/1991	Yuen	128/20
5,139,511 A *	8/1992	Gill et al.	606/198
5,176,649 A *	1/1993	Wakabayashi	604/164
5,295,994 A	3/1994	Bonutti	606/192
5,310,406 A	5/1994	Sharpe et al.	
5,313,962 A	5/1994	Obenchain	
5,439,464 A	8/1995	Shapiro	
5,454,365 A	10/1995	Bonutti	600/204
5,472,426 A *	12/1995	Bonatti et al.	604/164
5,569,290 A	10/1996	McAfee	606/185

FOREIGN PATENT DOCUMENTS

DE	42 34 990 A1	10/1992
DE	41 33 298 A1	4/1993
DE	43 18 950 C1	9/1994
EP	0 610 099 A2	8/1994
EP	0 614 647 A2	9/1994
FR	2 701 379	8/1994
WO	WO 92/21292	12/1992
WO	WO 94/03114	2/1994
WO	WO 95/22285	8/1995
WO	WO 95/32663	12/1995

* cited by examiner

Primary Examiner—David O. Reip

(74) *Attorney, Agent, or Firm*—Armstrong, Westerman & Hattori, LLP.

(57) **ABSTRACT**

A cavity-retaining tool for bone surgery includes a cavity-retaining sheath which is inserted into the body and forms a cavity to act as a work space for bone surgery, a treatment channel which is placed in the cavity-retaining sheath and guides treatment tools necessary for the treatment of a bone into the space for bone surgery, an observation tool which is attached to the cavity-retaining sheath and by which to observe the operation field within the space for bone surgery, and a fitting portion which is placed at a tip of the cavity-retaining sheath and fits the tip of the cavity-retaining sheath to a bone.

101 Claims, 52 Drawing Sheets

